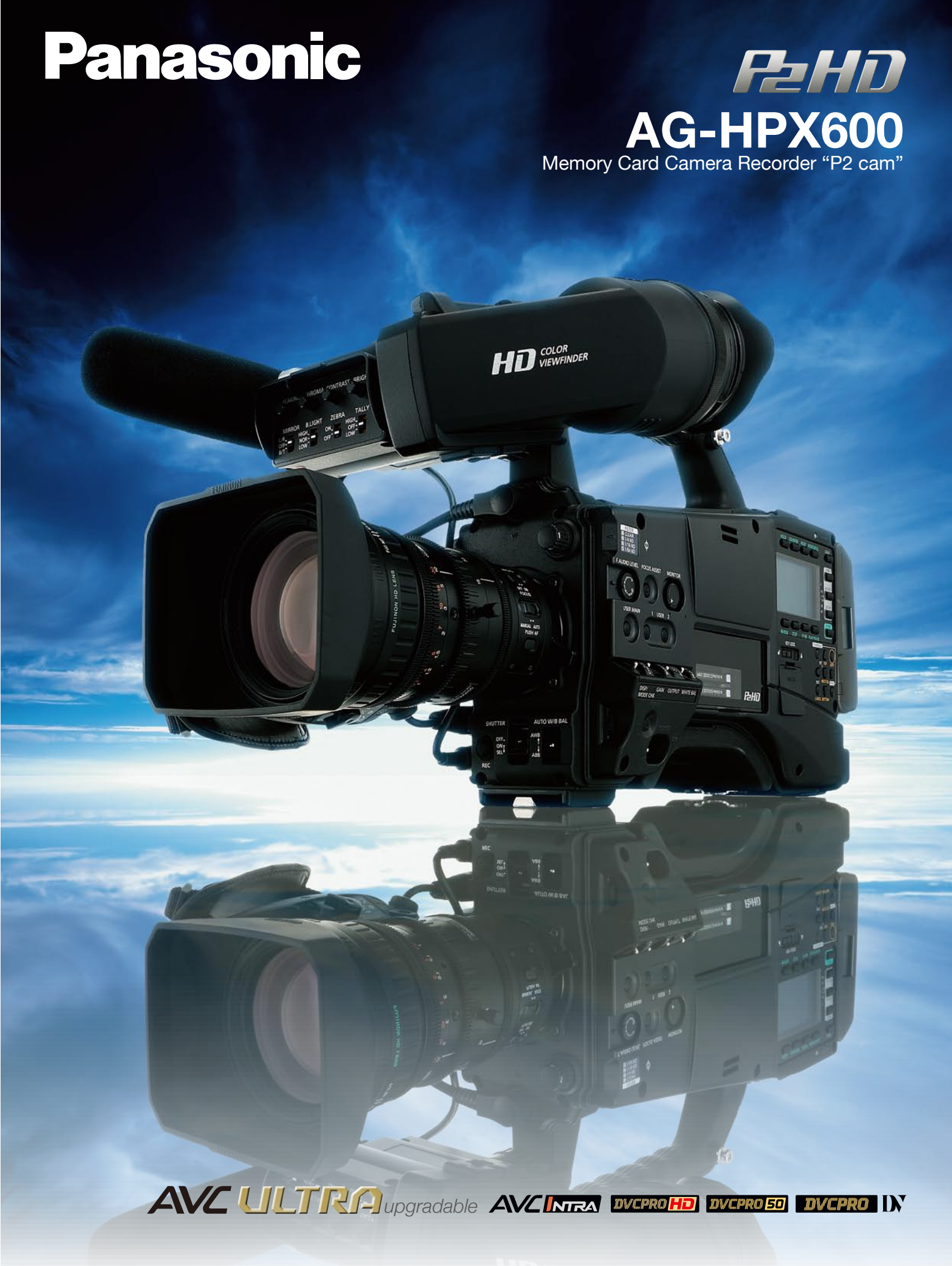
Panasonic

P2HD

AG-HPX600

Memory Card Camera Recorder “P2 cam”



AVC ULTRA upgradable AVC INTRA DVCPRO HD DVCPRO 50 DVCPRO DV

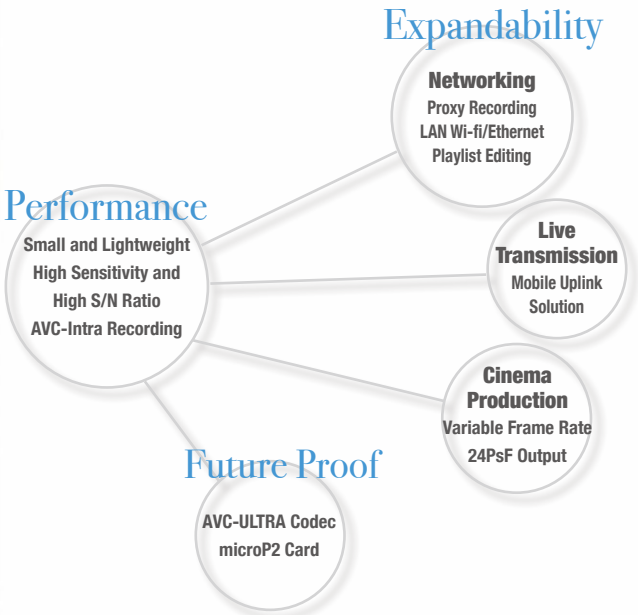
High Performance, Expandable and

Compact, Lightweight, High-Sensitivity Camera Recorder with Excellent Expandability and a Future Proof Design

This new concept P2 cam combines high cost-performance, easy operation, expandable functions, and a future proof design to meet needs in a wide range of uses, from image production to broadcasting. A 2/3-type shoulder-type model, it accommodates a variety of interchangeable lenses. And its compact body provides superb mobility with the industry's lowest weight*1 of approximately 2.8 kg (6.2 lb) for the main unit. Its newly developed MOS sensor attains high F12 sensitivity (at 59.94 Hz) and low noise with an S/N of 59 dB (standard). Multi HD/SD codecs, including AVC-Intra100/50, are equipped. In addition to these basic specifications, a wide range of functions are available as options, such as networking functions, uplink device support, and a Variable Frame Rate (VFR). This enables low-cost system support for numerous and diverse applications. The AG-HPX600 also supports new P2HD technologies such as the AVC-ULTRA family of codecs*2 and microP2 cards.*3 These and other features will allow the P2 cam to transition smoothly to the next generation of video systems.

*1: For a 2/3-type shoulder-type HD camera recorder (as of April 2013).
*2: Scheduled for future release as a paid option, not all AVC-ULTRA formats will be supported.
*3: For the latest firmware, see "Service and Support" on the Panasonic web site (http://pro-av.panasonic.net/).

Future Proof



Expandability – Optional Function Expansion

Proxy and Networking Options

Low-rate proxy files (Quick Time/H.264)*4 with high resolution and superb sound quality are supported. This allows a PC, a Mac, a tablet, or a smartphone*5 to be used for previewing, metadata input, network transfers and even simple editing,*6 for a cloud-based workflow that maximizes IT potential.

Optional Uplink Device Support

Portable uplink solutions are supported. The status, settings, and bandwidth condition for the LiveU LU40 Series*7 can be displayed on the camera viewfinder, and uplink start/stop can be operated. This allows the camera operator to handle live relays comfortably and securely.

Optional VFR and 24PsF Production

Quick/slow-motion recording is provided by the use of a variable frame rate (frame dropping/high-speed shooting). Recording modes of 24p/30p/over 60p can be simultaneously selected, with 24 PsF output from SDI OUT to meet diverse image production needs.

Future Proof – Upgrades for Future Enhancement

AVC-ULTRA and microP2 card

The AG-HPX600 can be upgraded, for a fee, to accommodate the new P2 AVC-ULTRA codec*8 and new microP2 recording media. These future options provide more efficient, higher-quality recording, greater compactness, lighter weight, and more economical media. And they prepare you for the time when P2 moves forward to meet the broadcast and image production needs of the next generation.

*4: Proxy data cannot be recorded when using the Loop Rec or Interval Rec function. Proxy data is low-resolution video and audio data with time code, metadata, and other management data in a file format. The use of DCF Technologies is under license from Multi-Format, Inc. *5: For the latest information, see "Service and Support" on the Panasonic web site (http://pro-av.panasonic.net/). *6: The supported functions vary depending on the optional configuration. See page 5 for details. *7: The LiveU LU40 Series is not included in the option. *8: Not all AVC-ULTRA formats will be supported.

Performance

The high-sensitivity MOS sensor and AVC-Intra codec enable high-quality, Full-HD 10 bit 4:2:2* recording.

* Using the AVC-Intra100 codec.

The 2/3-type bayonet mount interchangeable lens system

2/3-type Interchangeable Lenses

The 2/3-type bayonet mount interchangeable lens system lets you choose from a variety of 2/3-type zoom lenses for broadcasting and other professional uses from third-party manufacturers. Select the lens type and performance level that meet your needs.

New, High-Sensitivity F12 MOS Sensor

The newly developed 2/3-type MOS sensor allows you to select two modes: the NORMAL mode offering ultra low noise, and the LOW LIGHT mode offering high sensitivity levels of F12 at 59.94 Hz (F13 at 50 Hz).

Image of shooting with F12 sensitivity (AG-HPX600)

Image of shooting with F8 sensitivity (equivalent to the naked eye)

High-Quality Image Processing and Versatile Image Settings

- **CAC (Chromatic Aberration Compensation):** When using a CAC compatible lens, the small amount of circumjacent chromatic aberration (circumjacent blur) that is not corrected by the lens is compensated by this process.
- **DRS (Dynamic Range Stretch):** Suppresses blocked shadows and blown highlights to achieve a visually wide dynamic range.

*The DRS function does not operate in 1080/25p, 1080/24p or 1080/30p mode.

- **Advanced Flash Band Compensation (FBC):** High-precision flash band detection and compensation.
- **Gamma:** Select from 7 mode (HD NORM/LOW/SD NORM/HIGH/B. PRESS/CINE-LIKE D/CINE-LIKE V) gamma curves.
- **Digital image settings:** H Detail, V Detail, Detail Coring, Skin Tone Detail, Chroma Level, Chroma Phase, Color Temperature, Master Pedestal, Knee (LOW/MID/HIGH), Matrix (NORM1/NORM2/FLUO/CINE-LIKE).

Professional Shooting Functions

- Scan Reverse function for use with a cinema lens adapter.
- Digital Zoom function for 2x and 4x close-ups.
- Variable Shutter Speed from 1/12 sec to 1/2000 sec plus Synchro Scan function.
- Four-position (CLEAR, 1/4 ND, 1/16 ND, 1/64 ND) optical neutral density filter wheel.

Standard-Equipped, High-Quality AVC-Intra Codecs

AVC-Intra This advanced system maintains intra-frame compression based on the new MPEG-4 AVC/H.264 moving picture compression technology. It records in AVC-Intra100 mode (1920 x 1080,*1 10 bit, 4:2:2) for images with full-pixel HD and full sampling, and AVC-Intra50 mode (1440 x 1080,*1 10 bit, 4:2:0) for high-quality images at a low bit rate and for low-cost operation. The AG-HPX600 will also support the new codec, AVC-ULTRA*2 in the future as a paid upgrade.

*1: These figures are for 1080i/p mode. The AG-HPX600 also supports 720p mode.
*2: Not all AVC-ULTRA formats will be supported.

HD/SD Multi-Format and Multi-Codec Recording

- AVC Intra100/50: 1080/60i, 24pN, 30pN, 720/60p, 24pN, 30pN*
- DVCPRO HD: 1080/60i, 24p, 24pA, 30p, 720/60p, 24p, 30p*
- DVCPRO 50/DVCPRO/DV: 480/60i, 30p, 24p, 24pA*
- 50 Hz mode: 1080/50i, 25p, 25pN, 720/50p, 25p, 25pN, 576/50i, 25p

* 24p = 23.98p, 30p = 29.97p, 60p = 59.94p and 60i = 59.94i

48 kHz/16 bit, 4 Channel Digital Audio

The AG-HPX600 can record full 48 kHz/16 bit digital audio on all four channels. You can freely select the audio source for each channel, choosing from mic-in, line-in and wireless receiver.

P2 Card/microP2 Card*1 — Excellent Speed, Reliability, and Environmental Performance

- **Reliable for broadcast-use:** Offers high reliability to withstand impacts, vibrations, and temperature changes.
- **Quick start:** Lets you stand by with the power off, then start shooting immediately with no need for cueing.
- **Safety:** Automatically records onto blank card sections and protects against accidental data overwriting.
- **Re-use:** High durability and reliability allows years of repeated use.
- **Instant playback:** Files can be played or transferred as soon as the thumbnail images are displayed.

*1: Requires the optional AJ-P2AD1G Memory Card Adapter and microP2 Card Compatibility Upgrade of the AG-HPX600 firmware, to use microP2 Card.

Versatile File-Based Recording Functions

- **Double Slot system:** Two P2 card slots allow continuous recording, card select (recording slot selection), and hot-swap recording (replacing a card during recording).
- **One-Clip rec mode:** Records up to 99 consecutive cuts as a single clip.
- **Loop rec:***1 Repeatedly re-records while maintaining a recording of the most recent, predetermined period.
- **Pre-rec:***1 Continuously stores footage prior to pressing Rec Start for recovery if desired.
- **Interval rec:***1 Automatically records intermittently based on a set interval and recording time.
- **One-shot rec:***1 A frame-shot recording function useful for producing animations.
- **Text Memo:***2 Up to 100 memos can be posted onto a clip as bookmarks.
- **Shot Marker:***2 Used to mark clips as OK, NG, etc.
- **Metadata:** Data with information such as operator's name, shooting location, and text memos can be added via an SD Memory Card.

*1: These functions cannot be used during optional Variable Frame Rate recording.
*2: Shot marker and text memo cannot be used in loop rec, interval rec, or one-shot rec.

Functions

Comfortable operating functions, such as SmartUI, and a host of system functions are included in this compact, lightweight (approximately 2.8 kg (6.2 lb)) body.

A large number of functions can be quickly set on the "SmartUI".

The Lightest 2/3-type Shoulder-type Model

The AG-HPX600 is the lightest* in its class at approximately 2.8 kg (6.2 lb) for the main unit. This compact body provides superb mobility. It is also designed with excellent forward visibility.

* As a 2/3-type shoulder-type HD camera recorder (as of August 2012).

Low Power Consumption

Power consumption for the main unit is only 18 W. This is a reduction of about 50% from our previous model, the AJ-HPX2000/2100 (36 W for the main unit only, with LCD off), which was released in 2007. The AG-HPX600 consumes only 22 W even with the optional AG-YDX600G Video Encoder Board and optional AG-YA600G HD/SD SDI Input Board mounted.

SmartUI — A New User Interface

This newly designed user interface consists of an LCD and a variety of switches. A large number of functions, including Scene File settings, Audio Level settings, Audio IN/OUT selection, Time Code settings, and MON/HDMI Output Video settings, are easy to recognize and can be set with only a few steps each.

Versatile Shooting Assist Functions

- **Focus Assist:** Press the Focus Assist button to expand the center section of the viewfinder screen for easier focusing.
- **Scene Files:** Select either of six preset files from the menu according to the shooting situation. The settings can also be stored onto an SD card.
- **Gain:** There is a three-position gain selector with a maximum gain value of +18 dB.
- **User Buttons:** Functions can be freely allocated to the three User buttons.
- **Shockless White Balance:** A smooth transition occurs when switching White Balance modes. This is effective, for example, when moving from outdoors to indoors.
- **WFM:** Simplified waveform and vectorscope display.
- **Zebra:** Select any two levels from among 50% to 109%, in 1% steps.
- **Mode check:** Displays a list of the camera settings.
- **Y-GET:** Measures brightness at center and displays numerical data.
- Auto White Balance with an auto tracking white function.
- User files can be saved to an SD card and shared with other cameras.
- Audio input level adjustment (front) can be switched on/off and allocated to desired channels.

New Color LCD Viewfinder

The newly designed, optional AG-CVF10G Color HD Viewfinder (cost-effective model) and AG-CVF15G Color HD Viewfinder (upper grade model) are 8.76 cm (3-1/2 inches) color LCD with approximately 920,000 dot resolution and a 16:9 aspect ratio. When opened, it serves as an LCD monitor. The optional 5.08 cm (2 inches) AJ-HVF21KG Monochrome HD Viewfinder can also be used.

Waveform (The above photo is AG-CVF10G)

Camera Remote System Compatibility

- **10 pin Remote Terminal:** Camera remote operation is enabled with the optional AG-EC4G Extension Remote Control Unit or AJ-RC10G Remote Control Unit.*
- **Camera Studio System:** The optional camera extension system (AG-CA300G Camera Adapter and AG-BS300 Base Station) support low-cost studio integration.

* Only functions that are supported by the AG-HPX600 can be controlled.

HD SDI IN/OUT, HDMI OUT

- **SDI OUT (IN):** It outputs SDI with embedded audio. Backup recording operation can be interlinked with the Rec Start/Stop controls of an SDI input-equipped Panasonic recorder, such as the AG-HPD24. Adding the optional AG-YA600G HD/SD SDI Input Board makes it possible to switch SDI input with this terminal, for line recording.
- **HDMI OUT:** This terminal allows digital A/V output to a wide range of devices with both professional and consumer specifications.
- **MON OUT:** This terminal outputs separate from the SDI OUT terminal. It can also be set to output HD SDI, down-converted SD SDI, or VBS.
- **Aspect conversion:** The aspect ratio can be selected to Side Crop, Letter Box, or Squeeze mode when down-converting and outputting from SDI OUT/MON OUT terminals.

Other Interfaces

- **TC IN/OUT:** A built-in SMPTE time code generator/reader. IN/OUT selectable by menu settings.
- **GENLOCK IN:** For synchronized recording with a multi-camera system.
- **USB 2.0***1**:** Equipped with both HOST (for connection to an HDD) and DEVICE (for connection to a PC/Mac) terminals.
- **UniSlot®***2 compatible wireless receiver slot (2 channels).
- **XLR audio input:** 2 channel mic/line inputs supporting 48V phantom power supply.
- Audio output terminals (pin jacks), 2 channels.
- Multiple battery support, including Anton Bauer.

*1: When the 64GB microP2 card is used, the copy at only the clip unit is possible.

*2: UniSlot® is a trademark of Ikegami Tsusinki Co., Ltd.

Rear Terminal

Audio Output (Right Side)

USB Terminal Left Side)

Expandability

Proxy recording, network functions, uplink support and a variable frame rate.
This expandable system lets you add only the functions you need.

Revolutionary Workflow with High-Resolution Proxy Video and Network Options

High-Resolution Proxy Video Supported (With the optional AG-YDX600G Video Encoder Board)

With this option, the AG-HPX600 records proxy files onto SD/SDHC memory cards or onto P2 cards.*1 It supports high-quality video (Quick Time/H.264) and audio formats at a low bit rate. High-quality proxy files can be used for breaking news and other scenarios that would benefit from proxy workflows. Moreover, it streamlines the production workflow by allowing the editor to review the content details during offline editing.

* Proxy data cannot be recorded when using the Loop Rec or Interval Rec function. Proxy data is low-resolution video and audio data with time code, metadata, and other management data in a file format. The use of DCF Technologies is under license from Multi-Format, Inc.

Streaming with a Wireless or Wired LAN (With the optional AG-SFU601G Upgrade Software Key and AJ-WM30 Wireless Module)

These options enable use of a wireless or wired (Ethernet) LAN. Proxy files*2 can be streamed or viewed via a standard web browser on a PC/Mac, tablet, or smartphone.*3 While viewing the streamed files, metadata can be added to the P2 files. Using a PC/Mac also enables a cloud-based workflow by uploading and sharing video data via a network.

*2: The optional AG-YDX600G Video Encoder Board is required to use proxy video.
*3: For the latest information, see "Service and Support" on the Panasonic web site (http://pro-av.panasonic.net/).

Playlist Editing*4 with Proxy Video on a PC or Tablet NEW (With the Optional AG-SFU604G Upgrade Software Key)

The AG-HPX600 and a device, such as a PC, a Mac, or a tablet, connected to a wired or wireless network can be used for playlist editing. This greatly increases the efficiency and speed of your workflow by making it possible to handle preliminary editing with only the camera and connected device, and then transfer the data*5 wherever it is needed. Playlist editing and saving, playlist viewing and SDI output, as well as editing and copying can all be done by web apps.

*4: In addition to the AG-SFU604G Upgrade Software Key, the AG-YDX600G Video Encoder Board and AG-SFU601G Upgrade Software Key are required for operation. For a wireless LAN connection, the AJ-WM30 Wireless Module is also required.
*5: There is no data transfer function in the camera itself.

Video Uplink System Supported

Improvement Convenience for Uplink Equipment NEW (With the optional AG-SFU603G Upgrade Software Key)

Support*6 is provided for video uplink systems using ordinary phone lines. The status, settings, and bandwidth condition for the LiveU LU40 Series*7 can be displayed on the camera viewfinder, and uplink start/stop can be operated by camera-operator without taking eye away from VF. This allows the camera operator to handle live relays comfortably and securely.

*6: The camera software must be updated. The LiveU LU40 Series is not included in the option. A BNC cable and USB cable are required to connect the camera to the LU40 Series. For mounting to the camera, a separately purchased mount adapter (manufactured by a different company) is required. For information on LiveU and other application solutions, see "Service and Support" on the Panasonic web site (http://pro-av.panasonic.net/).
*7: Visit the LiveU web site (http://www.liveu.tv/LU40i.html).

A web app (for iPad) for proxy video and playlist editing

Example of a system with LiveU LU40 series. The uplink status is displayed on the viewfinder.

Future Proof

Compatible with the P2HD next-generation codec family AVC-ULTRA and the new solid state recording media microP2 card.

The VFR Option for Cinema Production Use

Variable Frame Rate Shooting and 24PsF Output
(With the optional AG-SFU602G Production Package Upgrade Software Key)

In 720p mode, the frame rate can be set in the range of 1 fps – 60 fps, and in 1080p mode it can be set to 1 fps – 30 fps. This allows the use of undercranking and overcranking to create fast-motion and slow-motion effects. Either 24p/30p Native mode or over 60p mode can be selected for recording. In addition, the 24PsF format can be output from SDI OUT for uncompressed data recording.

Variable Frame Rate

Top: 24p Cinema-like
Middle: Overcrank (slow)
Bottom: Under crank (quick)

Shown above is a sample of operation style.

AVC-ULTRA

AVC-ULTRA Upgrade Service*1
(A paid upgrade scheduled for future)

AG-HPX600 can be upgraded to support the AVC-ULTRA family of codecs to meet the variety of image production demands.

*1: Not all AVC-ULTRA formats will be supported. The upgrade will require the replacement of a circuit board inside the camera recorder. The service will include charges for the new circuit board, the software upgrade, and labor.

microP2 Card

microP2 Card Compatibility Upgrade*2
(An upgrade scheduled to begin in April 2013)

The P2 card has evolved into the microP2 card (32 GB/64 GB), a new solid state recording media for broadcast use. While achieving the same compact size as the SD Memory Card and a dramatic reduction in cost, the new microP2 card also offers high-speed data transfer, high reliability and high security.

*2: For the latest firmware, see "Service and Support" on the Panasonic web site (http://pro-av.panasonic.net/).

AJ-P2M032AG/064AG
microP2 Card*3

The microP2 card features the compact size and low cost of the SD Memory Card, while also providing the P2 content protection of the P2 card's highly reliable RAID technology and CPS (Content Protection System). It achieves a maximum data transfer speed of 2 Gbps.

*1: Requires the optional AJ-P2AD1G Memory Card Adapter to use the microP2 Card with the AG-HPX600.

AJ-P2AD1G
Memory Card Adapter

This conversion adapter enables the use of the microP2 card by devices, such as the AG-HPX600, which are equipped with a P2 slot. It offers a guaranteed writing speed up to AVC-Intra100 (excluding 1080, 60p/50p).*4

*4: Using SDHC/SDXC memory card is not guaranteed. For details, see the back page of this brochure (Notes Regarding the Handling of P2 Files Using a PC – Precautions When Using SDHC/SDXC Memory Cards with the AJ-P2AD1G Memory Card Adapter).

AJ-MPD1G
Memory Card Drive "microP2 drive"

This compact, lightweight, low-cost microP2 Card Drive has 2 card slots. The high-speed USB 3.0 interface allows high-speed reading up to 2.0 Gbps.

Option

AG-HPX600 option/P2 system option

AG-CVF10G
Color HD View Finder
Open one way for LCD monitor viewing

AG-CVF15G
Color HD View Finder
Open two ways for LCD monitor viewing

AJ-HVF21KG
50.8 mm (2 inches)
HD EVF
59.94 Hz/50 Hz switchable

AG-MC200G
XLR Microphone

SHAN-TM700
Tripod Adaptor

AG-YA600G
HD/SD SDI Input Board

AG-YDX600G
Video Encoder Board

The use of DCF Technologies is under license from Multi-Format, Inc.

AJ-WM30
Wireless Module

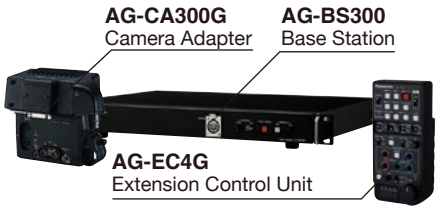
AG-SFU601G
Upgrade Software Key*1
Enables proxy previewing and metadata input via a wired or wireless LAN system. AG-YDX600G Video Encoder Board is required for proxy viewing.

AG-SFU602G
Upgrade Software Key*1
Enables variable frame rate shooting and 24PsF output.

AG-SFU603G NEW
Upgrade Software Key*1
Enables linking to the LiveU LU40 Series Live Uplink Solution.

AG-SFU604G NEW
Upgrade Software Key*1
Enables playlist editing with proxy video on a LAN connected device.
AG-YDX600G Video Encoder Board and AG-SFU601G Upgrade Software Key are required for operation.

Camera Studio System



Transmits high-quality images and remote control signals for studio integration.

AG-YA500G
VF Interface Box
For Viewfinder Display of Return Image and Tally

AJ-RC10G
Remote Control Unit with 10 meters (32 feet) remote control cable

AJ-C10050G
Remote Control Cable
(50 meters / 164 feet)

* Not available in some areas.
* The remote control unit can control only functions supported by the AG-HPX600. It cannot control unsupported keys or dials.

AJ-P2E064FG
AJ-P2E032FG
AJ-P2E016FG
Memory Card
(P2 card F series)

SD/SDHC/SDXC
Memory Card

microP2 Card

AJ-P2M032AG NEW
AJ-P2M064AG NEW
Memory Card
"microP2 card"

AJ-P2AD1G NEW
Memory Card Adapter

AJ-MPD1G NEW
Memory Card Drive
"microP2 drive"

P2 Viewer Plus
Viewing Software*2
Compatible with both Windows/Mac OS.

AJ-SK001G (for P2 Viewer plus) NEW
Ingesting Function Software Key*2

The ingesting function copies all clips on P2 cards to a storage medium, such as an HDD. During ingesting, the clips are verified for secure copying, with log files created.

AJ-SC900
Soft Carrying Case
*Not available in some area

SHAN-RC700
Rain Cover
*Not available in some area

Other Manufacturer's Products

Anton/Bauer Dionic Battery
LU40 series
LiveU Portable Uplink Solution

Bound Cable for Camera Studio System
(between AG-BS300 and AG-CA300G)
[Canare]
V2PCS25-5CFWCE-SF-SC
(25 meters /82 feet)
V2PCS50-5CFWCE-SF-SC
(50 meters /164 feet)
V2PCS100-5CFWCE-SF-SC
(100 meters /328 feet)

Power Cable for Camera Studio System
(between AG-BS300 and AG-CA300G)
[Canare]
DC50V10-CE01PS-SC
(50 meters /164 feet)
DC100V10-CE01PS-SC
(100 meters /328 feet)

Canare Electric CO., Ltd.
http://www.canare.co.jp/oversea/mainmenu.html

Avid NLE Plug-In Software*1

(Avid Media Composer v6.5 or later)

AJ-PS001G NEW
Software Key
for AVC-Proxy re-link.
(Scheduled for release in June, 2013/For purchase)

AJ-PS002G NEW
Software Key
for AVC-Intra50/100 P2 file export.
(Scheduled for release in June, 2013/For purchase)

AJ-PS003G NEW
Software Key
for AVC-LongG P2 file export.
(Scheduled for release in autumn, 2013/For purchase)

AJ-PS004G NEW
Software Key
for AVC-LongG file import to edit.
(Scheduled for release in autumn, 2013/For purchase)

*1: For information on purchasing software keys, see "Service and Support" on the Panasonic web site (http://pro-av.panasonic.net/).
*2: For P2 Viewer Plus download and operating requirement information, see "P2 Viewer Plus" on the Panasonic web site (http://pro-av.panasonic.net/en/sales_o/p2/p2viewerplus/).

As of April, 2013

AG-HPX600 SPECIFICATIONS

As of April, 2013

General Specification

Supply Voltage:	DC 12 V (DC 11 V to 17 V)
Power Consumption:	18 W (main unit only) 22 W (with AG-YDX600G and AG-YA600G)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10% to 85% (no condensation)
Keeping Temperature:	–20 °C to 60 °C (–4 °F to 140 °F)
Weight: accessories	Approx. 2.8 kg (6.2 lb) excluding battery and
Dimensions (W x H x D):	144 mm x 267 mm x 350 mm (5-21/32 inches x 10-1/2 inches x 13-25/32 inches) excluding prominent parts

Camera Section

Pick-up Device:	2/3-type MOS x 1
Lens Mount:	2/3-type bayonet type
ND Filter:	4 position (Clear, 1/4ND, 1/16ND, 1/64ND)
Gain Selection*1:	–3 dB, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 18 dB (18 dB: USER SW allocation)
Color Temperature Settings:	ATW, ATW LOCK, Ach, Bch, Preset 3200 K/Preset 5600 K/VAR (2400K to 9900K)
Shutter Speed: (Preset)	SYSTEM MODE = 59.94 Hz •60i/60p mode: 1/60 (OFF) sec., 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. •30p mode: 1/30 (OFF) sec., 1/50 sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec. •24p mode: 1/24 (OFF) sec., 1/50 sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec. SYSTEM MODE = 50 Hz •50i/50p mode: 1/50 (OFF) sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. •25p mode: 1/25 (OFF) sec., 1/50 sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec.
Shutter Speed: (Slow)	SYSTEM MODE = 59.94 Hz •60i/60p mode: 1/15 sec., 1/30 sec. •30p mode: 1/15 sec. •24p mode: 1/12 sec. SYSTEM MODE = 50 Hz •50i/50p mode: 1/12.5 sec., 1/25 sec. •25p mode: 1/12.5 sec.
Shutter Speed: (Syncro Scan)	SYSTEM MODE = 59.94 Hz (SYNC SCAN TYPE = sec) •60i/60p mode: 1/60.0 sec. to 1/249.8 sec. •30p mode: 1/30.0 sec. to 1/249.8 sec. •24p mode: 1/24.0 sec. to 1/249.8sec. SYSTEM MODE = 50 Hz (SYNC SCAN TYPE = sec) •50i/50p mode: 1/50.0 sec. to 1/250.0 sec. •25p mode: 1/25.0 sec. to 1/250.0 sec.
Shutter Open Angle:	SCENE FILE VFR = OFF 3 deg to 360 deg, 0.5 deg step select SCENE FILE VFR = ON*2 (FRAME RATE 12p or more) 3 deg to 360 deg, 0.5 deg step select SCENE FILE VFR = ON*2 (Less than FRAME RATE 12p) 3 deg to 22.5 deg, 0.5 deg step select 45 deg, 90 deg, 180 deg, 360 deg
Frame Rates*2: (59.94 Hz mode)	•1080: 1/2/4/6/9/12/15/18/20/21/22/24/25/26/27/28/30 (frames per second) 17 steps •720: 1/2/4/6/9/12/15/18/20/21/22/24/25/26/27/28/30/32/34/36/40/44/48/54/60 (frames per second) 25 steps
Frame Rates*2: (50 Hz mode)	•1080: 1/2/4/6/9/12/15/18/20/21/22/23/24/25 (frames per second) 14 steps •720: 1/2/4/6/9/12/15/18/20/21/22/23/24/25/26/27/28/30/32/34/37/42/45/48/50 (frames per second) 25 steps
Sensitivity*3:	F12 (2000 lx, 3200 K, 89.9% reflect, 1080/59.94i) F13 (2000 lx, 3200 K, 89.9% reflect, 1080/50i)
Video S/N*3:	59 dB (standard)
Digital Zoom:	x 2, x 4

Memory Card Recorder Section

Recording Media:	P2 card
System Formats:	1080/59.94i, 1080/23.98PsF*2, 720/59.94p, 480/59.94i, 1080/50i, 720/50p, 576/50i
Recording Video Signal:	1080/59.94i, 1080/29.97p, 1080/29.97pN, 1080/23.98p, 1080/23.98pA, 1080/23.98pN, 1080/50i, 1080/25p, 1080/25pN, 720/59.94p, 720/29.97p, 720/29.97pN, 720/23.98p, 720/23.98pN, 720/50p, 720/25p, 720/25pN, 480/59.94i, 480/29.97p, 480/23.98p, 480/23.98pA, 576/50i, 576/25p
Recording Formats:	AVC-Intra100/AVC-Intra50/DVCPRO HD/ DVCPRO 50/DVCPRO/DV formats switchable
Recording/Playback Time*4: with a 64 GB P2 card	AVC-Intra100/DVCPRO HD: approx. 64 min. AVC-Intra50/DVCPRO 50: approx. 128 min. DVCPRO/DV: approx. 256 min.
Recording/Playback Time*4: with a 32 GB P2 card	AVC-Intra100/DVCPRO HD: approx. 32 min. AVC-Intra50/DVCPRO 50: approx. 64 min. DVCPRO/DV: approx. 128 min.
Recording/Playback Time*4: with a 16 GB P2 card	AVC-Intra100/DVCPRO HD: approx. 16 min. AVC-Intra50/DVCPRO 50: approx. 32 min. DVCPRO/DV: approx. 64 min.

Digital Video Specification

Recorded Video Signals:	AVC-Intra100/DVCPRO HD: Y: 74.1758 MHz, PB/PR: 37.0879 MHz (59.94 Hz) Y: 74.2500 MHz, PB/PR: 37.1250 MHz (50 Hz) DVCPRO 50: Y: 13.5 MHz, P PB/PR: 6.75 MHz DVCPRO: Y: 13.5 MHz, PB/PR: 3.375 MHz
Quantizing:	AVC-Intra100/AVC-Intra50: 10 bit DVCPRO HD/DVCPRO 50/DVCPRO/DV: 8 bit
Video Compression:	AVC-Intra100/AVC-Intra50: MPEG-4 AVC/H.264 Intra Profile DVCPRO HD: DV-Based Compression (SMPTE 370M) DVCPRO 50/DVCPRO: DV-Based Compression (SMPTE 314M) DV: DV Compression (IEC 61834-2)

Digital Audio Specification

Recording Audio Signal:	AVC-Intra100/AVC-Intra50: 48 kHz, 16 bit, 4CH DVCPRO HD/DVCPRO 50: 48 kHz, 16 bit, 4CH DVCPRO/DV: 48 kHz, 16 bit, 2CH/4CH switchable
Headroom:	20 dB/18 dB switching via menu

Video Input/Output

SDI OUT/IN (OP)*5:	BNC×1 HD SDI: 0.8 V [p-p], 75 Ω SD SDI: 0.8 V [p-p], 75 Ω
MON OUT:	BNC×1, HD SDI/SD SDI/VBS (Analog Composite) can be switched on SmatUI HD SDI: 0.8 V [p-p], 75 Ω / SD SDI: 0.8 V [p-p], 75 Ω / VBS: 1.0 V [p-p], 75 Ω
HDMI OUT:	HDMI x 1 (HDMI TypeA terminal), VIERA Link not supported

Audio Input/Output

AUDIO IN:	XLR (3 pin) x 2 LINE/MIC switchable, high impedance, LINE: 0 dBu, MIC:–50 dBu/–60 dBu (switching via menu) MIC +48 V ON/OFF (switchable)
MIC IN:	XLR (3 pin) x 1 +MIC/+48 V switchable, –40 dBu/–50 dBu/–60 dBu (switching via menu)
WIRELESS IN:	25 pin, D-SUB, –40 dBu 2CH supported
AUDIO OUT:	Pin jack × 2 (CH1/CH2), Output: 316 mV, 600 Ω
PHONES OUT:	ø3.5 mm stereo mini jack × 1
Speaker:	20 mm diameter × 1

Other Input/Output

GENLOCK IN:	BNC × 1, 1.0 V [p-p], 75 Ω
TC IN/OUT:	IN: BNC × 1, 0.5 V [p-p] to 8V [p-p], 10 kΩ OUT: BNC × 1, 2.0 V ±0.5 V [p-p], low impedance (IN/OUT switching via menu)
DC IN:	XLR × 1, 4 pin, DC 12 V (DC 11.0 V to 17.0 V)
DC OUT:	4 pin, DC 12 V (DC 11.0 V to 17.0 V), Max. 1.5 A
REMOTE:	10 pin
LENS:	12 pin
VF:	20 pin
LAN*6:	100BASE-TX/10BASE-T
USB 2.0 (HOST):	Type-A, 4 pin USB ver 2.0 Standard
USB 2.0 (DEVICE):	Type-B, 4 pin USB ver 2.0 Standard
USB 2.0 (HOST)*6:	Type-A, 4 pin USB ver 2.0 Standard for Wireless Module AJ-WM30 or UPLINK USB cable

Included Accessories

Shoulder strap, Mount cap*7, CD-ROM

*1: When SHOOTING MODE is NORMAL on SYSTEM SETUP MENU, –3 dB setting is treated as 0dB and 18dB setting can not be active. *2: AG-SFU602 Upgrade Software Key is required.
*3: When SHOOTING MODE is LOW LIGHT on SYSTEM SETUP MENU *4: Time shown above is when you record a series of 1 shot onto P2 card. Depending on numbers of shots you record, time will get shorter than the number shown above. *5: Mounting the optional AG-YA600G HD/SD SDI Input Board makes this system SDI Input. (SDI OUT/IN switching via menu) *6: When Upgrade Software Key AG-SFU601 is installed, the network function of cable LAN and wireless LAN becomes effective.
*7: It is attached to the main body.

Weight and dimensions shown are approximate. Specifications are subject to change without notice.

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Informative product-related content also available with equipment registration.

Please refer to the latest Non-linear Compatibilty Information,
P2 Support, Download and Service Information, etc. at the following Panasonic web site.

http://pro-av.panasonic.net/

Notes Regarding the Handling of P2 Files Using a PC

Mounting and Transferring Files

The PC must be installed with the included P2 driver in order to recognize, copy and transfer P2 files. This driver is also necessary when using the PC card slot and when handling P2 files stored on a hard-disk device, such as the P2 store. The included P2 driver is compatible with Windows Vista, Windows XP, Windows 2000 and Mac OSX. For other operating requirements, refer to the P2 installation manual. The P2 driver and the P2 installation manual can be downloaded free from the following Panasonic web site. Visit https://eww.pavc.panasonic.co.jp/pro-av/ and click "P2 Support and Download."

Preview and Nonlinear Editing

To preview (play) P2 files on a PC, it is necessary to install the P2 Viewer software (downloadable for free, for Windows only) or P2 CMS content management software (downloadable for free, for both Windows and Mac), both from Panasonic, or P2-compatible editing software available from other companies (for details, visit https://eww.pavc.panasonic.co.jp/pro-av/sales_o/p2/partners.html). Note that each software places specific requirements on the operating environment, and the operating environment must meet additional requirements to play and edit HD content on Windows PCs and Macs. For P2 Viewer or P2 CMS download and operating requirement information, visit https://eww.pavc.panasonic.co.jp/pro-av/. For operating requirements and details of other P2 editing software, visit the web site of the relevant software manufacturer.

Precautions When Using SDHC/SDXC Memory Cards with the AJ-P2AD1G Memory Card Adapter

•Only the DV, DVCPRO, DVCPRO50, and AVC-Intra50 recording formats can be used when using the Memory Card Adapter on P2 Series products. Memory cards of Class 10 or higher are recommended, but recording may not be possible with some cards. •DVCPRO HD and AVC-intra100 cannot be used. •Memory card data capacity must be 4 GB or more and 128 GB or less. •Interval Rec, One-Shot Rec, Loop Rec, or One-Clip Rec cannot be used. •If the reading performance is insufficient during playback, frames might be skipped (Best-effort playback). •When copying clips that extend over two SDHC/SDXC memory cards onto another SDHC/SDXC memory card, the connecting relationship between the cards will not be saved. Under certain conditions, the connecting relationship between original and copied SDHC/SDXC Memory Cards is saved.

Panasonic

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Factories of AVC Networks Company have received ISO14001:2004-the Environmental Management System certification. (Except for 3rd party's peripherals.)

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